

Appl. No. 09/931,776
Amdt. dated August 30, 2004
Reply to Office Action of June 29, 2004

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions, and listings, of claims:

- 1 1. – 2. (Cancelled).
- 1 3. (Original) A method, comprising:
2 associating an initial error correcting code with a redundancy defined within a
3 data storage device; and
4 replacing the initial error correcting code with an updated error correcting code.
- 1 4. (Original) The method of claim 3, additionally comprising moving a divider,
2 defined between the redundancy and a payload, to provide space required by the updated
3 error correcting code within the redundancy.
- 1 5. (Original) The method of claim 3, additionally comprising reorganizing an
2 address space shared by a payload and the redundancy to provide space required by the
3 updated error correcting code within the redundancy.
- 1 6. (Original) The method of claim 3, additionally comprising performing a memory
2 test on the data storage device to determine if the initial error correction code is of
3 sufficient strength.
- 1 7. (Original) The method of claim 3, additionally comprising tracking errors made
2 by the data storage device to determine if the initial error correction code is of sufficient
3 strength.
- 1 8. (Original) The method of claim 3, additionally comprising tracking time and
2 usage of the data storage device to determine if the initial error correction code is of
3 sufficient strength.

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- 1 9. (Previously Presented) A method comprising:
2 defining a payload and a redundancy within a storage device, the payload to the
3 payload plus redundancy defining a ratio;
4 dynamically altering the ratio to change an amount of the redundancy;
5 tracking time and usage of the data storage to determine if the ratio results in
6 sufficient redundancy.
- 1 10. (Original) The method of claim 9, additionally comprising:
2 performing a memory test on the data storage device to determine if the ratio
3 results in sufficient redundancy.
- 1 11. (Original) the method of claim 9, additionally comprising:
2 tracking errors made by the data storage device to determine if the ratio results in
3 sufficient redundancy.
- 1 12. (Cancelled)
- 1 13. (Previously Presented) A system, comprising:
2 a technology type determination module to report a technology of a storage device
3 so that an initial error correcting code will be more appropriately selected;
4 an update error correcting code assignment module to assign an updated error
5 correcting code to replace the initial error correcting code in response to a changed error
6 rate; and
7 an error correcting code library containing at least two error correcting codes from
8 which the update error correcting code assignment module may select.
- 1 14. (Original) The system of claim 13, additionally comprising an initial error
2 correcting code assignment module to assign the initial error correcting code in response
3 to an initial error rate.
- 1 15. (Cancelled)

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1 16. (Original) The system of claim 13, additionally comprising a storage device
2 memory test module to perform a memory test on a storage device and report to the
3 update error correcting code assignment module..

1 17. (Original) The system of claim 13, additionally comprising an application
2 determination module to determine an application to which a storage device will be put
3 and to report to the update error correcting code assignment module.

1 18. (Original) The system of claim 13, additionally comprising an error tracking,
2 recording and analysis module, to report information on errors made by a storage device
3 to the update error correcting code assignment module.

1 19. (Original) The system of claim 13, additionally comprising an age and use
2 tracking module to report information on an age and use level of a storage device to the
3 update error correcting code assignment module.

1 20. (Original) A system, comprising:
2 an ECC library, containing at least two error correcting codes;
3 an initial error correcting code assignment module to assign an initial error
4 correcting code from the ECC library appropriate to an expected initial error rate;
5 a technology type determination module to determine a technology of a storage
6 device and to report the technology to the initial error correcting code assignment
7 module;
8 an application determination module to determine an application to which the
9 storage device will be put and to report to the initial error correcting code assignment
10 module;
11 an update error correcting code assignment module to assign an updated error
12 correcting code from the ECC library appropriate in response to a changed error rate;

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13 a storage device memory test module to perform a memory test on the storage
14 device and report to the update error correcting code assignment module so that a
15 decision to assign an updated error correcting code may be made;
16 an error tracking, recording and analysis module to report information on errors
17 made by the storage device to the update error correcting code assignment module so that
18 a decision to assign an updated error correcting code may be made;
19 an age and use tracking module to report information on an age and use level of
20 the storage device to the update error correcting code assignment module so that a
21 decision to assign an updated error correcting code may be made; and
22 an application tracking module to report changes in an application to which the
23 storage module is being used to the update error correcting code assignment module so
24 that a decision to assign an updated error correcting code may be made.

1 21. (Original) A computer-readable medium having computer-executable
2 instructions thereon which, when executed, perform acts comprising:
3 associating an initial error correcting code with a redundancy defined within a
4 data storage device;
5 associating an updated error correcting code with the redundancy in response to a
6 change in an error rate associated with the data storage device; and
7 moving a divider, defined between the redundancy and a payload within the data
8 storage device, to provide space required by redundancy data associated with the updated
9 error correcting code.

1 22. (Original) A computer-readable medium having computer-executable
2 instructions thereon which, when executed, perform acts comprising:
3 monitoring an error rate of a storage device; and
4 dynamically altering a ratio of a redundancy to a payload to provide a level of
5 redundancy appropriate to the error rate.

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1 23. (Previously Presented) A method of initial error code correction assignment at a
2 manufacturing facility, comprising:
3 locating a divider segregating a payload and a redundancy portion of a data
4 structure in a storage device;
5 allocating the redundancy portion by moving the divider;
6 assigning an initial error code correction to the redundancy portion.

1 24. (Currently Amended) The method of claim 23 wherein the initial error code
2 correction is assigned based at least in part on an initial determination of storage device
3 technology, a memory test, and a determination of use to which the storage device will be
4 put.

1 25. (Cancelled)

1 26. (Currently Amended) The method of claim 25 A method of updating an error
2 code correction assignment for an end-use device, comprising:
3 determining a need to install a substitute error code correction assignment for the
4 end-use device;
5 selecting the substitute error code correction assignment on an as-needed basis;
6 changing the location of a divider to accommodate the substitute error code
7 correction for the end-use device,
8 wherein determining a need to install a substitute error code correction
9 assignment includes tracking errors, monitoring media age and use levels, and
10 performing self-testing to evaluate memory condition for the end-use device.

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1 27. (Previously Presented) A method of determining an initial segregation between a
2 payload and redundancy associated with a data structure of a storage device, comprising:
3 determining a technology type of the storage device;
4 performing a memory test on the storage device and recording a result of the
5 memory test;
6 determining a use to which the storage device will be put;
7 selecting an error code correction based on the determinations and memory test;
8 segregating the data structure to accommodate the error code correction.

1 28. (Currently Amended) The method of claim 27 further comprising mapping out
2 [[of]] an address space in the data structure memory locations of inadequate reliability
3 after performing the memory test.

1 29. (Previously Presented) The method of claim 27 further comprising:
2 evaluating information corresponding to an error rate to determine if the error rate
3 has increased;
4 reusing the storage device if the error rate is substantially constant; and
5 updating the error correction code if the error rate has increased beyond a
6 threshold value.